

## CLAIMS

- 1 1. (Currently amended) A method of alloying ~~incorporating~~ a nanostructured chemical  
2 selected from the group consisting of POSS and POS into a fluoropolymer, comprising the step  
3 of compounding [[a]] the nanostructured chemical into the ~~polymer~~ fluoropolymer.
- 1 2. (Currently amended) A method according to claim 1, wherein a ~~mix of different~~ plurality  
2 of nanostructured chemicals is compounded into the polymer.
- 1 3. (Original) A method according to claim 1, wherein the fluoropolymer is in a physical  
2 state selected from the group consisting of oils, amorphous, semicrystalline, crystalline,  
3 elastomeric and rubber.
- 1 4. (Original) A method according to claim 1, wherein the fluoropolymer contains a  
2 chemical sequence and related polymer microstructure.
- 1 5. (Currently amended) A method according to claim 1, wherein the ~~polymer~~ fluoropolymer  
2 is a polymer coil, a polymer domain, a polymer chain, a polymer segment, or mixtures thereof.
- 1 6. (Original) A method according to claim 1, wherein the nanostructured chemical  
2 reinforces the fluoropolymer at a molecular level.
- 1 7. (Original) A method according to claim 1, wherein the compounding is nonreactive.
- 2 8. (Original) A method according to claim 1, wherein the compounding is reactive.

1 9. (Currently amended) A method according to claim 1, wherein a physical property of the  
2 fluoropolymer is improved as a result of incorporating the nanostructured chemical into the  
3 ~~polymer~~ fluoropolymer.

1 10. (Currently amended) A method according to claim 9, wherein the physical property  
2 ~~comprises a member~~ is selected from the group consisting of adhesion to a polymeric surface,  
3 adhesion to a composite surface, adhesion to a metal surface, water repellency, density, low  
4 dielectric constant, thermal conductivity, glass transition, viscosity, melt transition, storage  
5 modulus, relaxation, stress transfer, abrasion resistance, fire resistance, biological compatibility,  
6 gas permeability, porosity, and optical quality.

1 11. (Currently amended) A method according to claim 1, wherein the compounding step is  
2 accomplished by blending the nanostructured chemical into the ~~polymer~~ fluoropolymer.

1 12. (Currently amended) A method according to claim ~~[[1]]~~ 11, wherein the compounding step  
2 is accomplished by a blending process selected from the group consisting of melt blending, dry  
3 blending, and solution blending.

1 13. (Original) A method according to claim 1, wherein the nanostructured chemical functions  
2 as a plasticizer.

1 14. (Original) A method according to claim 1, wherein the nanostructured chemical functions  
2 as a filler.

1 15. (Currently amended) A method according to claim 1, wherein the nanostructured chemical  
2 is selectively compounded into the ~~polymer~~ fluoropolymer such that the nanostructured chemical  
3 is incorporated into a predetermined region within the ~~polymer~~ fluoropolymer.

1 16. (Currently amended) A method according to claim 1, wherein A method of controlling the  
2 molecular motion of a ~~polymer~~, fluoropolymer is controlled by comprising compounding [[a]]  
3 the nanostructured chemical into the ~~polymer~~ fluoropolymer.

1 17. (Currently amended) A method according to claim 16, wherein a time dependent property  
2 is enhanced as a result of compounding the nanostructured chemical into the ~~polymer~~  
3 fluoropolymer.

1 18. (Original) A method according to claim 17, wherein the time dependent property is  
2 selected from the group consisting of  $T_g$ , HDT, modulus, creep, set, permeability, erosion  
3 resistance, abrasion resistance.

1 19. (Currently amended) A method according to claim 15, wherein ~~of reinforcing a selected~~  
2 ~~region of a polymer, the method comprising: compounding a~~ the nanostructured chemical with  
3 has chemical properties compatible with the selected predetermined region of the ~~polymer~~  
4 fluoropolymer, whereby the compounding reinforces the fluoropolymer.

1 20. (Cancelled)